



RAIL VISION



MassDOT/FMCB Joint Board

DECEMBER 17, 2018



Purpose of Today's Discussion

- Presentation of initial six systemwide alternatives
- Team is still developing additional alternatives that include line by line optimization based on Tier 1 analysis
- Presented to Advisory Committee on 12/13
- Feedback will be incorporated into a revised set of alternatives, which will be presented for Board approval in January

Common to All Alternatives

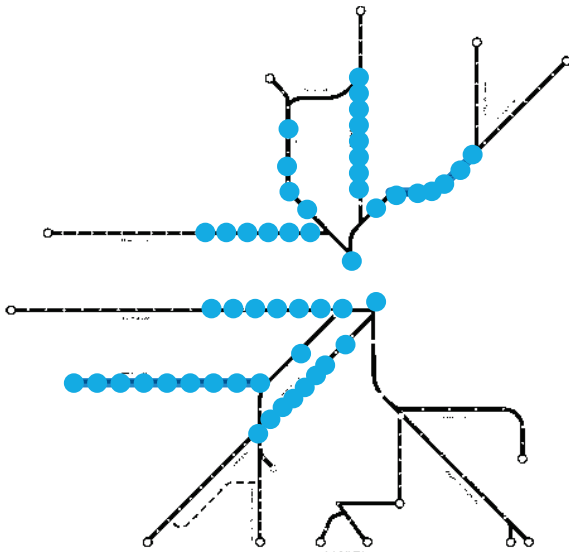
- ✓ More frequent, bi-directional service
- ✓ Infrastructure necessary to support service alternative will be in place
- ✓ Signal upgrades will support service plans (including Positive Train Control system-wide)
- ✓ West Station
- ✓ South Coast Rail (Phase 1 or 2)

Variable Elements in Alternatives

- Service Focus (Key Stations, Inner Core)
- Frequency (15, 30, 60 minutes)
- Electrification (Full, Partial, None)
- Rolling Stock (Electric, Diesel, Multiple Units)
- Terminal Capacity (North-South Rail Link (NSRL), South Station Expansion (SSX), Existing)
- Station Accessibility

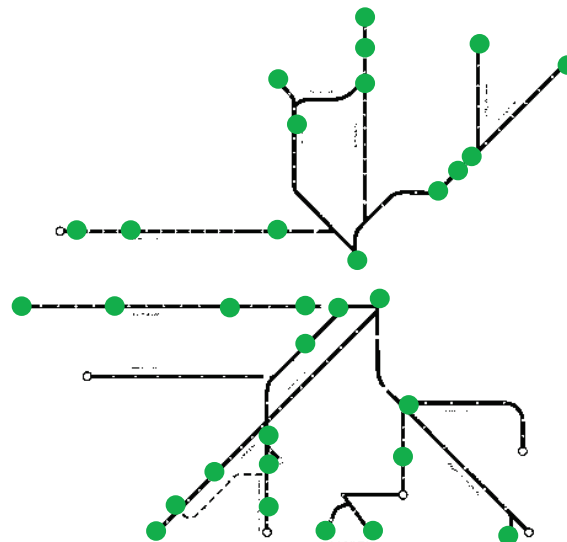
How the Alternatives Address...**Station Typologies**

Inner Core Stations



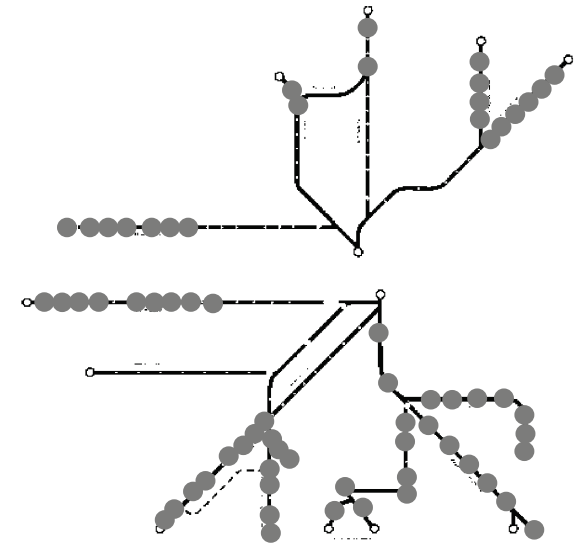
Locations Served by Urban Rail

Key Stations



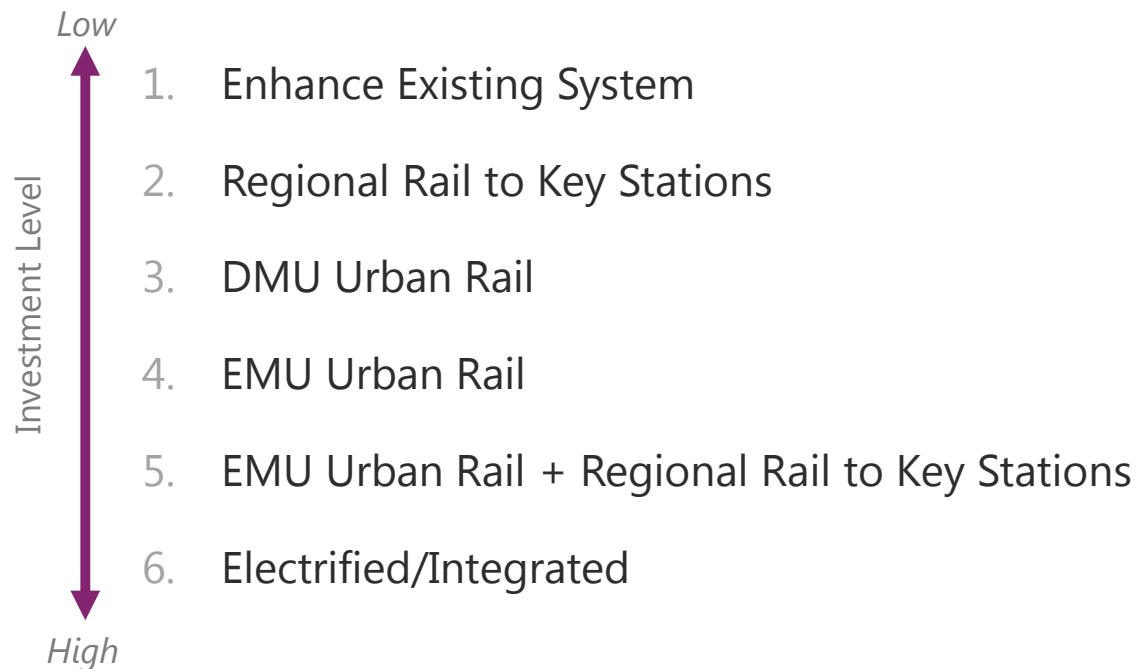
Gateway Cities, TOD Nodes, and
High Auto Access Locations

Other Stations



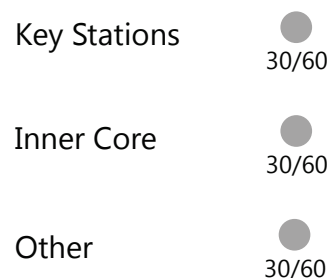
Regional and Local Locations

Potential Tier 2 Service Alternatives

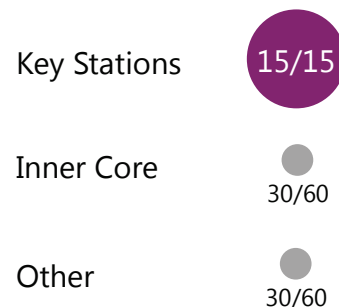


How the Alternatives Address...Frequency

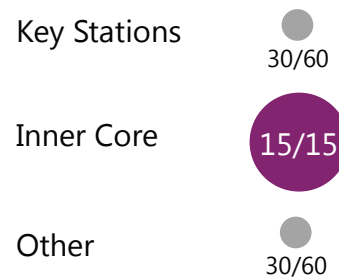
1. Enhance Existing System



2. Regional Rail to Key Stations

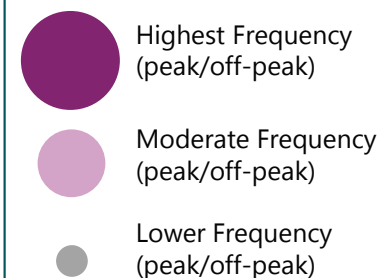


3. DMU Urban Rail

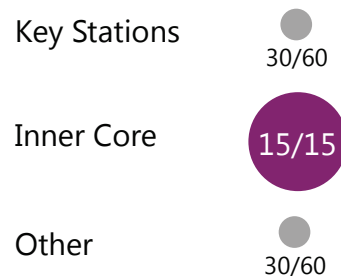


*All frequencies are
bi-directional*

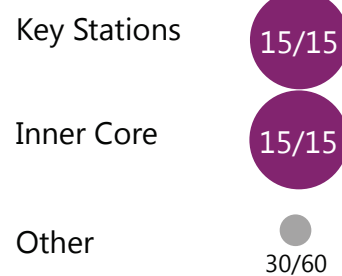
Legend



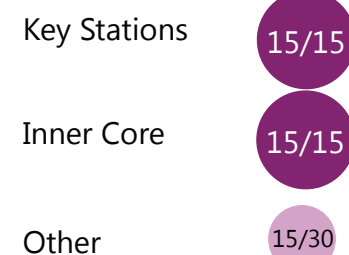
4. EMU Urban Rail



5. EMU Urban Rail + Regional Rail to Key Stations

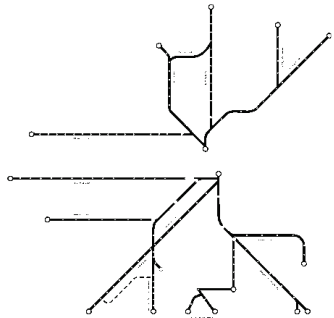


6. Electrified/Integrated



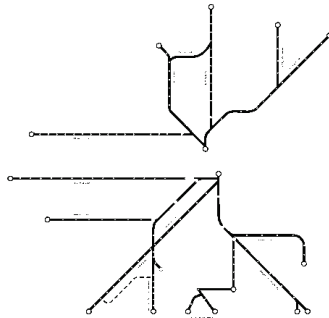
How the Alternatives Address...**Electrification**

1. Enhance Existing System



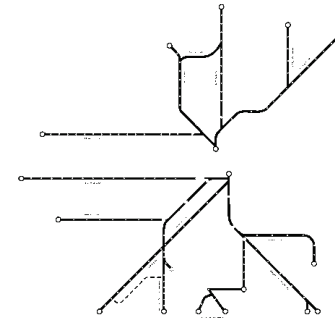
None

2. Regional Rail to Key Stations



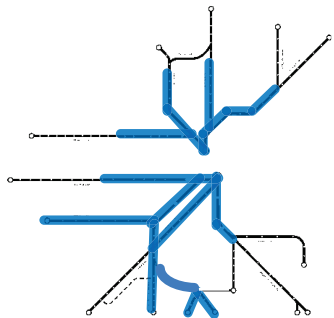
None

3. DMU Urban Rail



None

4. EMU Urban Rail



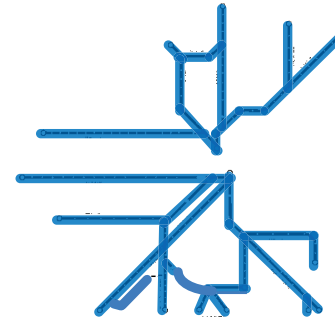
Partial

5. EMU Urban Rail + Regional Rail to Key Stations



Full

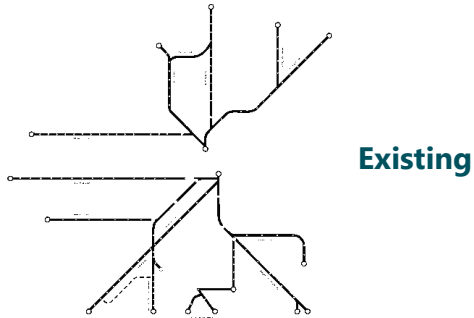
6. Electrified/Integrated



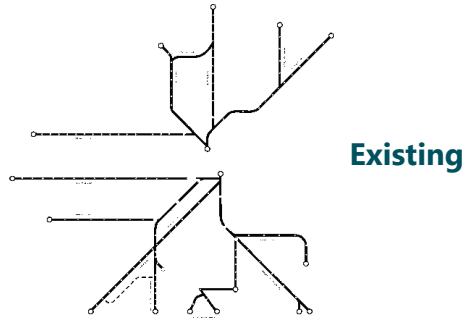
Full

How the Alternatives Address...**Terminal Capacity**

1. Enhance Existing System



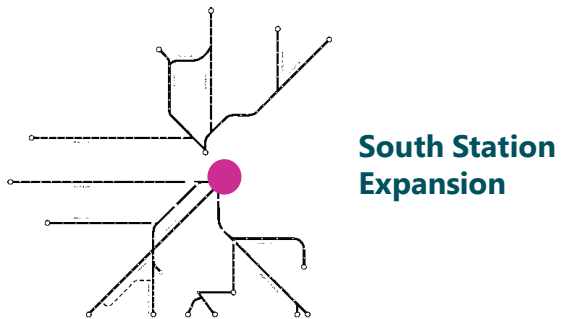
2. Regional Rail to Key Stations



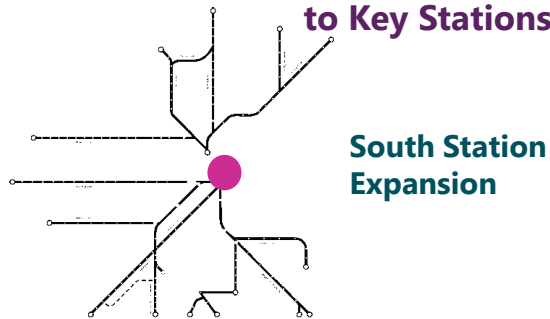
3. DMU Urban Rail



4. EMU Urban Rail



5. EMU Urban Rail + Regional Rail to Key Stations



6. Electrified/Integrated



How the Alternatives Address...**Station Accessibility**

1. Enhance Existing System

Key Stations

Inner Core

Other

2. Regional Rail to Key Stations

Key Stations



Inner Core

Other

3. DMU Urban Rail

Key Stations

Inner Core



Other

4. EMU Urban Rail

Key Stations

Inner Core



Other

5. EMU Urban Rail + Regional Rail to Key Stations

Key Stations



Inner Core



Other

6. Electrified/Integrated

Key Stations



Inner Core



Other

Legend



Stations Prioritized for Accessibility Upgrades

Accessibility upgrades would be done to be consistent with PATI program prioritization.

Summary of Proposed Service Alternatives for Tier 2

	Non-Electrified Alternatives			Electrified Alternatives		
Alternative	1. Enhance Existing System	2. Regional Rail to Key Stations	3. DMU Urban Rail	4. EMU Urban Rail	5. EMU Urban Rail + Regional Rail to Key Stations	6. Electrified/Integrated Stations
Investment Level	Lowest ----- Highest					
Typical Frequency (peak/off-peak)	30/60 Key Stations 30/60 Inner Core 30/60 Other	15/15 Key Stations 30/60 Inner Core 30/60 Other	30/60 Key Stations 15/15 Inner Core 30/60 Other	30/60 Key Stations 15/15 Inner Core 30/60 Other	15/15 Key Stations 15/15 Inner Core 30/60 Other	15/15 Key Stations 15/15 Inner Core 15/30 Other
Electrification	None	None	None	Partial: - Urban Rail - Providence Line - SCR Full Build	Full System	Full System
Rolling Stock	Diesel Locomotive	Diesel Locomotive	DMUs Diesel Locomotive	EMUs Diesel Locomotive	EMUs	EMUs
Terminals	Existing	Existing	SSX	SSX	SSX	NSRL
System Expansion	SCR Phase 1	SCR Phase 1 Foxboro	SCR Phase 1	SCR Full Build Grand Junction	SCR Full Build Grand Junction Foxboro	SCR Full Build Grand Junction Foxboro
Interlining	Haverhill/Lowell Franklin/Fairmount	Haverhill/Lowell Franklin/Fairmount Greenbush/Kingston Fitchburg/ Newburyport-Rockport	Haverhill/Lowell Franklin/Fairmount	Haverhill/Lowell Franklin/Fairmount	Haverhill/Lowell Franklin/Fairmount Greenbush/Kingston Fitchburg/ Newburyport-Rockport	Haverhill/Lowell Franklin/Fairmount Urban Rail/Urban Rail
Station Accessibility	Existing or Programmed	Key Stations	Inner Core	Inner Core	Key Stations Inner Core	All Stations



Appendix: Proposed Alternative Maps

Service Alternative #1: Enhance Existing System

Maximizes functionality of existing system with bi-directional, predictable, consistent pulse service and Regional Rail on longer lines

Key Features	
Typical Frequency	Key Stations: 30/60 bi-directional Inner Core: 30/60 bi-directional Other Stations: 30/60 bi-directional
Electrification	None
Rolling Stock	Diesel Locomotive
Terminals	Existing
System Expansions	SCR Phase 1
Interlining	Haverhill/Lowell Franklin/Fairmount
Station Accessibility	Existing or Programmed

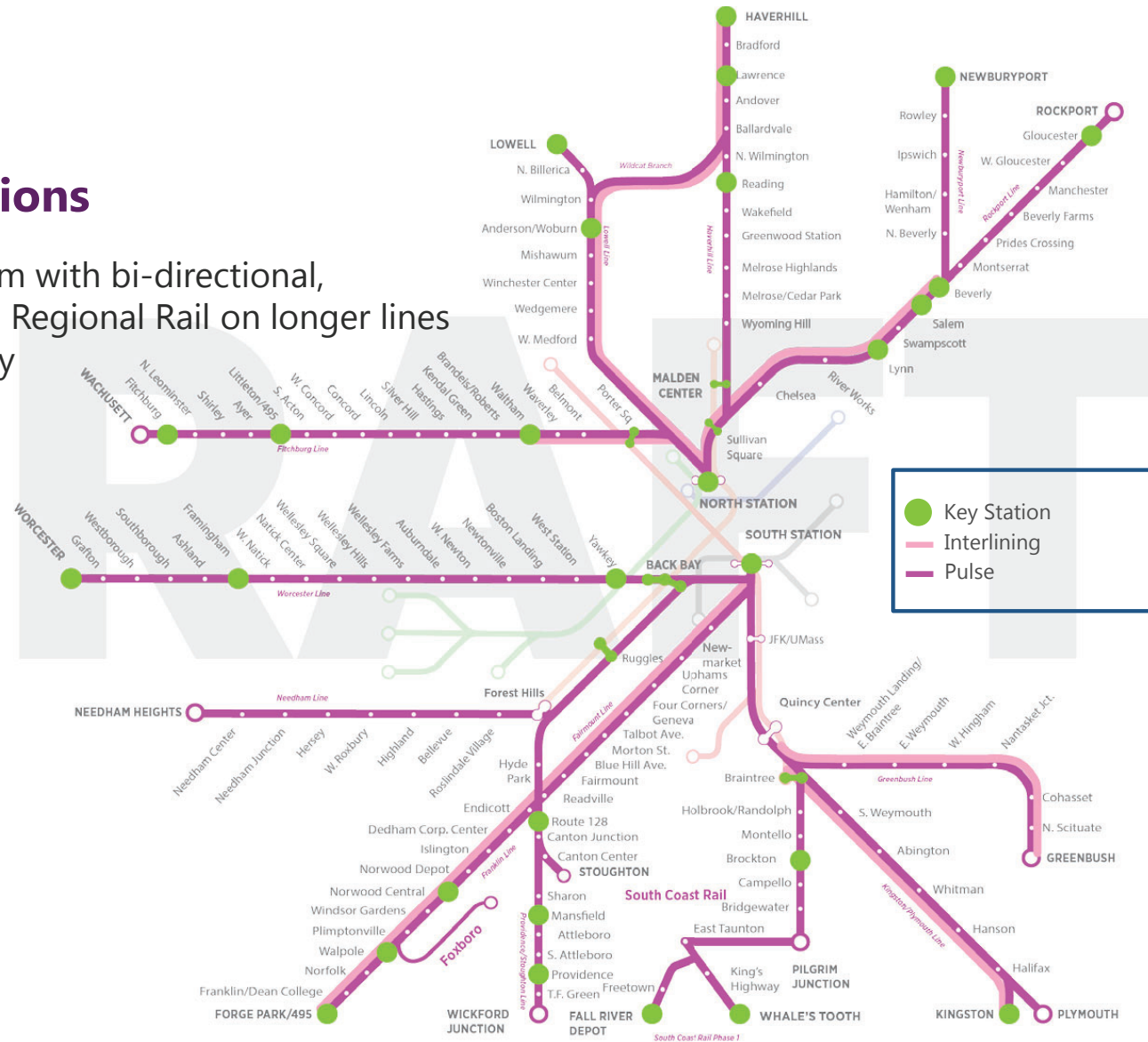


Service Alternative

#2: Regional Rail to Key Stations

Maximizes functionality of existing system with bi-directional, predictable, consistent pulse service and Regional Rail on longer lines and capacity to support added frequency

Key Features	
Typical Frequency	Key Stations: 15/15 bi-directional Inner Core: 30/60 bi-directional Other Stations: 30/60 bi-directional
Electrification	None
Rolling Stock	Diesel Locomotive
Terminals	Existing
System Expansions	SCR Phase 1 Foxboro
Interlining	Haverhill/Lowell Franklin/Fairmount Greenbush/Kingston Fitchburg/Newburyport-Rockport
Station Accessibility	Key Stations



Service Alternative

#3: DMU Urban Rail

All-day frequent service to inner core stations served by DMU trains, supported by frequent peak and hourly off-peak service to outer stations, with South Station Expansion

Key Features

Typical Frequency
Key Stations: 30/60 bi-directional
Inner Core: 15/15 bi-directional
Other Stations: 30/60 bi-directional

Electrification
None

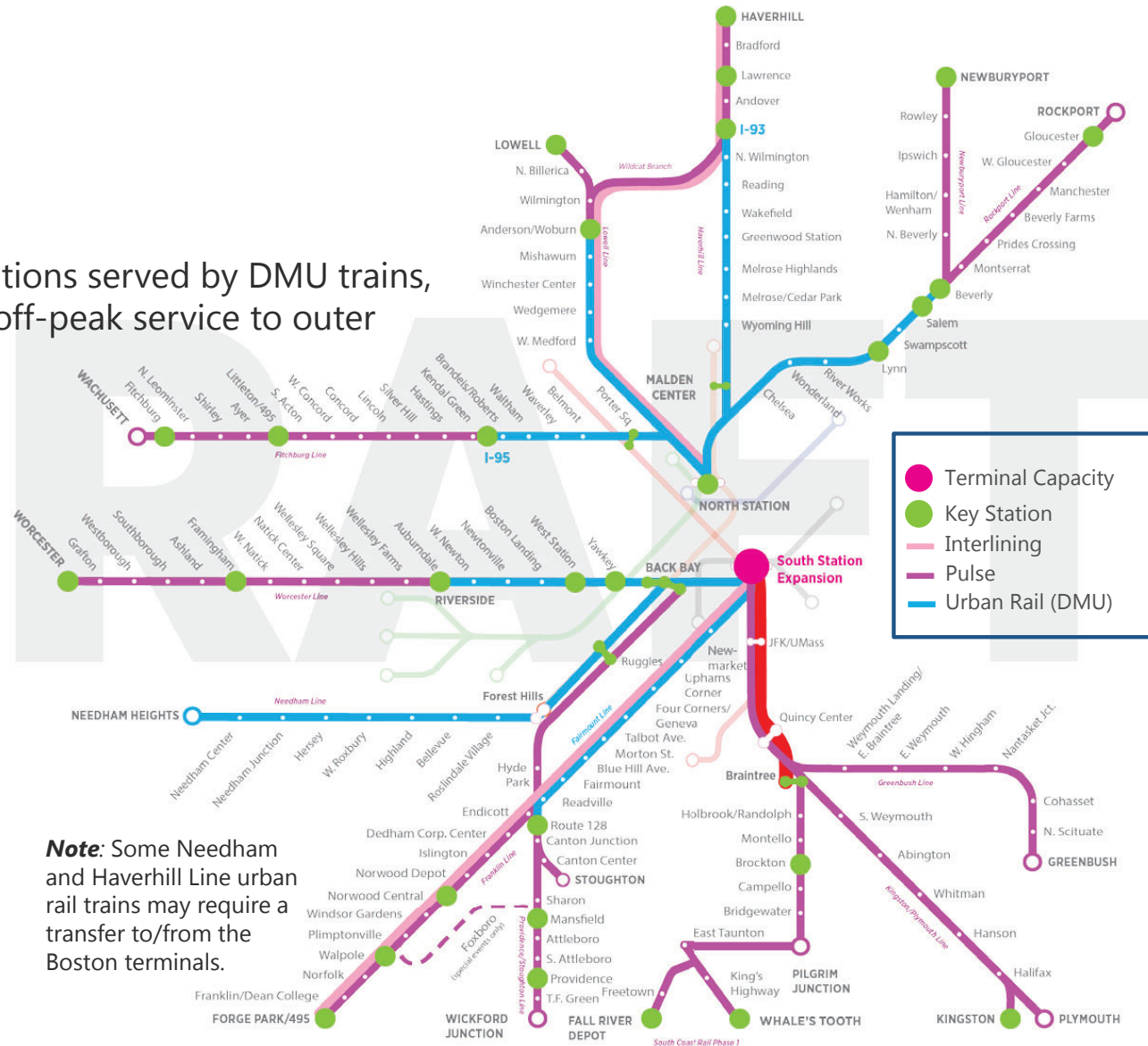
Rolling Stock
DMUs
Diesel Locomotive

Terminals
South Station Expansion

System Expansions
SCR Phase 1

Interlining
Haverhill/Lowell
Franklin/Fairmount

Station Accessibility
Inner Core



Service Alternative #4: EMU Urban Rail

All-day frequent service to inner core stations served by EMU trains, supported by frequent peak and hourly off-peak service to outer stations, with South Station Expansion

Key Features

Typical Frequency
Key Stations: 30/60 bi-directional
Inner Core: 15/15 bi-directional
Other Stations: 30/60 bi-directional

Electrification
Urban Rail
Providence Line
SCR Full Build

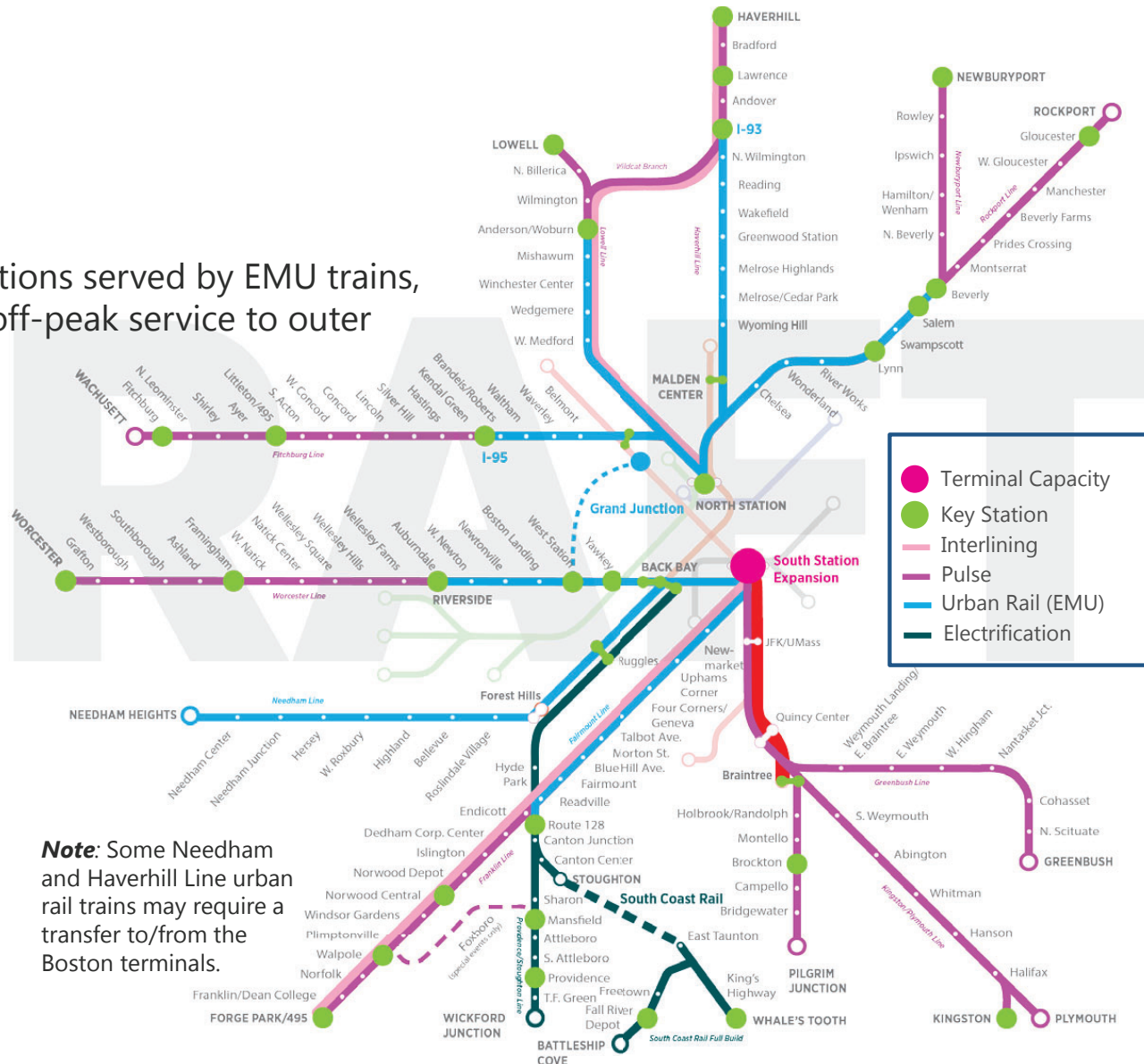
Rolling Stock
EMUs
Diesel Locomotive

Terminals
South Station Expansion

System Expansions
SCR Full Build
Grand Junction

Interlining
Haverhill/Lowell
Franklin/Fairmount

Station Accessibility
Inner Core



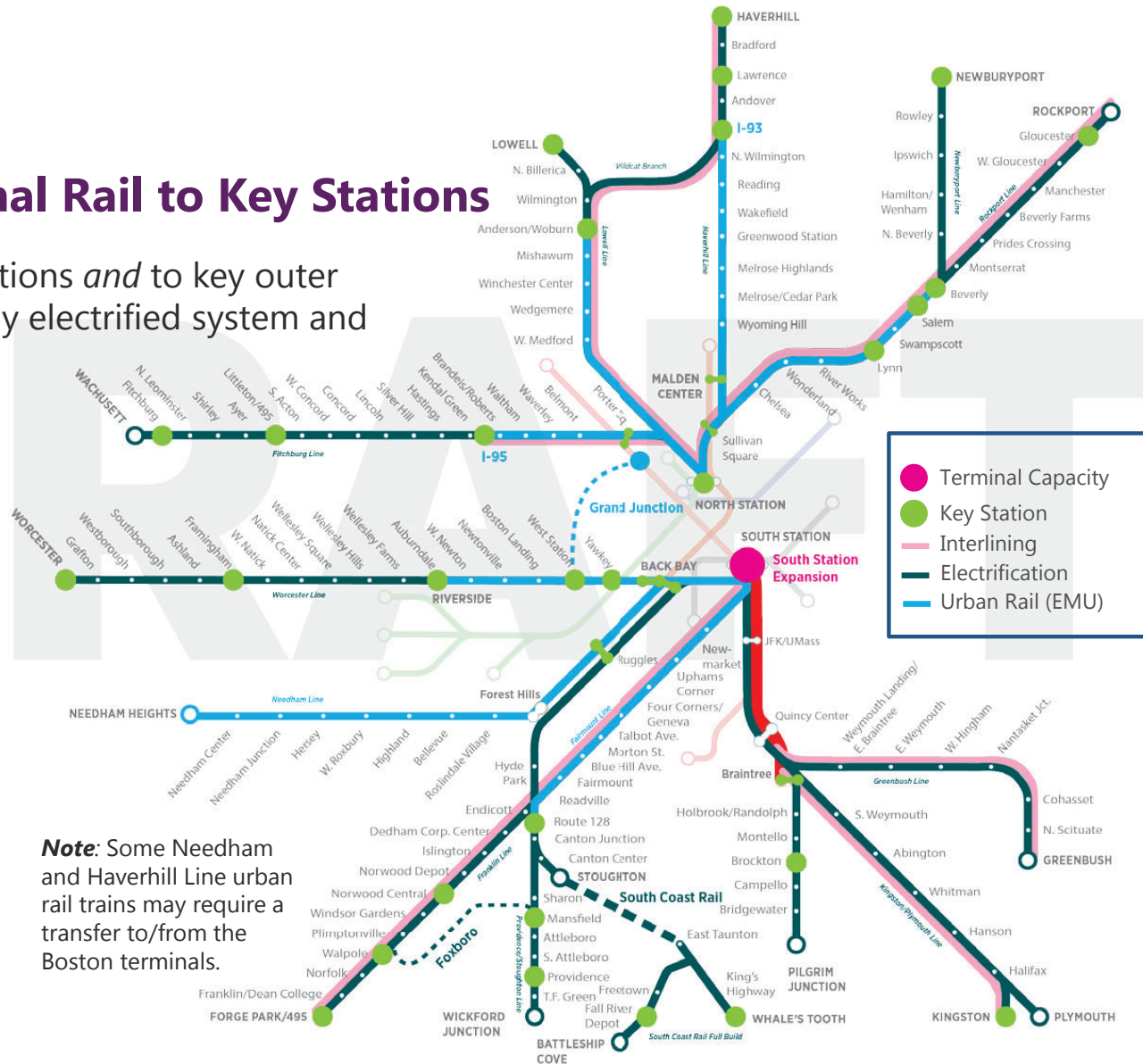
Service Alternative

#5: EMU Urban Rail + Regional Rail to Key Stations

All-day frequent service to inner core stations *and* to key outer stations, served by EMU trains, with a fully electrified system and South Station Expansion

Key Features

Typical Frequency	Key Stations: 15/15 bi-directional Inner Core: 15/15 bi-directional Other Stations: 30/60 bi-directional
Electrification	Full System
Rolling Stock	EMUs
Terminals	South Station Expansion
System Expansions	SCR Full Build Grand Junction Foxboro
Interlining	Haverhill/Lowell Franklin/Fairmount Greenbush/Kingston Fitchburg/Newburyport-Rockport
Station Accessibility	Key Stations Inner Core



Service Alternative

#6: Electrified/Integrated

Full system electrification, with a combination of Urban Rail in the inner core communities and Regional Rail for longer lines.

Key Features

Typical Frequency
Key Stations: 15/15 bi-directional
Inner Core: 15/15 bi-directional
Other Stations: 15/30 bi-directional

Electrification
Full System

Rolling Stock
EMUs

Terminals
North-South Rail Link

System Expansions
SCR Full Build
Grand Junction
Foxboro

Interlining
Haverhill/Lowell
Franklin/Fairmount
Urban Rail/Urban Rail

Station Accessibility
All Stations Served

